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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,562	01/11/2002	Mathias Popp	10015699-1	7936

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EXAMINER

BATAILLE, PIERRE MICHE

ART UNIT	PAPER NUMBER
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2186

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/043,562

Applicant(s)

POPP, MATHIAS

Examiner

Pierre-Michel Bataille

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 11, 14, 15, 18-20, 22-26 and 28-34 is/are rejected.
- 7) ☒ Claim(s) 7-10, 12, 13, 16, 17, 21 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is taken in relation to examination of the instant application, which present claims 1-34 for examination.

Specification/Objection

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. The following objection/rejection is noted:

Claim 14: the limitation, "the stored information for storage unit pair" lacks antecedent basis in the claims. It appears that "a storage unit pair" should be replaced with "the at least one storage unit pair" for proper antecedent basis.

Claim 22: the limitation, "the at least one storage unit pair" lacks antecedent basis in the claims.

Claim 31: the limitation, "the at least one storage unit pair" lacks antecedent basis in the claims.

Please note that these are only exemplary. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-6, 11, 14-15, 18-20, 22-26, and 28-34 are rejected under 35

U.S.C. 102(e) as being anticipated by US 6,260,124 (Crockett et al).

With respect to claims 1, 18, 22, and 31-32, Crockett discloses apparatus and method for monitoring conditions of a pair of storage units [(monitoring mirroring conditions during normal operations and resynchronization of a primary storage with a secondary storage after error conditions end); abstract; Col. 2, Lines 13-41; Col. 4, Lines 1-48], comprising: a database, adapted to store monitoring information for the storage unit and control unit (data mover with storage of synchronization flag and updated status indicating whether a primary storage and a secondary storage are synchronized) [Fig. 1; Col. 5, Lines 10-24], operatively connected to the database and adapted to obtain status information relating to the storage unit pair [(data mover to obtain synchronization status information) Col. 5, Lines 10-24], based on the stored monitoring information and adapted to automatically monitor mirroring conditions of the storage unit pair, based upon status information obtained, to automatically determine the status of the mirroring process between units of the storage unit pair [(data mover based on the synchronization status to mirror data from the primary storage to secondary storage) Col. 2, Lines 13-41; Col. 4, Lines 1-48]. Crockett further discloses method which may be implemented by operating the data mover, as embodied by a digital data processing apparatus 200, to execute a sequence of machine-readable instructions to

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perform the method to resynchronize backup storage to primary storage, ensuring that any updates received during resynchronization are applied in the proper order relative to resynchronization data [Col. 6, Lines 24-36].

With respect to claims 2-4, 19, 23-24, and 33, Crockett discloses the invention storing and monitoring information for at least one storage unit pair and automatically determining whether the mirroring process has been suspended and resynchronizing the mirroring process between units of the storage unit pair upon determining that the mirroring process has been suspended [(storing predetermined value in memory for the data mover to monitor state of synchronization, determine on-going or failed synchronization conditions and monitoring static synchronization after failed conditions thereby re-enabling mirroring) Col 7, Line 66 to Col. 8, Line 11].

With respect to claims 5-6, 15, 20, 25-26, and 34, Crockett discloses resynchronization occurring only upon determining that automatic resynchronization has been enabled with an auto-recover flag indicating automatic reconfiguration has been enabled [(static resynchronization flag indicating resynchronization is underway and indicating re-enabling mirroring of the primary storage and the backup storage) Col. 5, Lines 10-24; Col. 7, Lines 20-25].

With respect to claims 11, 14, 28-30, Crockett discloses storing monitoring information on a plurality of units wherein the monitoring information is remotely monitored with an interface for storing said monitoring information [(multiple controllers managing read/write operations at the primary storage and backup storage with each controller accessing

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updated map by asking whether static synchronization flag is set for static or dynamic synchronization mirroring the primary and backup storage) Col. 8, Lines 47-63].

Allowable Subject Matter

5. Claims 7-10, 12-13, 16-17, 21, 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,684,396 (Brittain et al) teaching method for upgrading running software processes without compromising fault-tolerance.

US 6,578,120 (Crockett et al) teaching synchronization and resynchronization of loosely-coupled copy operations between a primary and a remote secondary DASD volume under concurrent updating.

US 6,477,591 (VanderSpek) teaching method and apparatus for storing and copying data via a first path and a second path wherein second path bypasses mirror driver.

US 5,835,953 (Ohran) teaching backup system that takes a snapshot of the locations in a mass storage device that has been identified for updating prior to updating.


US 5,692,155 (Iskiyan et al) teaching method and apparatus for suspending multiple duplex pairs during back up processing to insure storage devices remain synchronized in a sequence consistent order.

US 5,513,314 (Kandasamy et al) teaching fault tolerant NFS server system and mirroring protocol.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre-Michel Bataille whose telephone number is (703) 305-0134. The examiner can normally be reached on Tue-Fri (7:30A to 6:00P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew M. Kim can be reached on (703) 305-3821. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Pierre-Michel Bataille
Primary Examiner
Art Unit 2186

March 17, 2004